QUIZZES

Practice Test-1 (Variations and Genetics/Inheritance)

10 Questions

7 min

Topics

Mendelian Inheritance, Law of Segregation, Law of independent assortment, Basic Terms

Start Quiz

06 : 59

Q 1/10 7 min Hint

Q : Transposons are capable of moving from one site in DNA sequence to other mostly:

A On same chromosome

B On homologous chromosomes

C **Randomly**

D On non-homologous chromosomes

06 : 58

Q 2/10 7 min Hint

Q : Which of the following is true about alleles?

A They occupy different loci on same chromosome

B They occupy same loci on different homologue

C They occupy different loci on same homologue

D They occupy same loci on respective homologue

06 : 56

3/10 7 min Hint

Q : Mendelism is related with:

A Meiosis during sexual reproduction

B Mutation in living organisms

C Heredity in living organisms

D Meiosis during asexual reproduction

06 : 55

Q 4/10 7 min Hint

Q : The haploid chromosome number in pea is:

A 8

B 7

C 10

D 14

Q : The organism chosen by G. Mendel to explain the laws of inheritance was:

A *Homo sapiens*

B ***Pisum sativum***

C *Antirrhinum majus*

D *Drosophila melanogester*

06 : 53

6/10 7 min Hint

Q : Mendel's law of segregation was based on the separation of alleles in the garden pea during:

A Pollination

B Seed formation

C Gamete formation

D Embryonic development

06 : 50

Q 7/10 7 min Hint

Q : In order to explain the mode of inheritance of characters through successive generations, Mendel proposed that the two alternative factors for each character become separated during the formation of gametes and each factors has an equal chance of being transferred to offsprings. This phenomenon is known as:

A Law of independent assortment

B Law of incomplete dominance

C Law of segregation

D Law of co-dominance

06 : 49

8/10 7 min Hint

Q : What the percentage of round green seeds in F2 progeny of dihybrid is cross were heterozygous for green seed color?

A 0%

B 25%

C 50%

D 100%

06 : 48

9/10 7 min Hint

Q : Albinism is a_____ trait.

A Autosomal dominant

B Autosomal recessive

C Sex-linked dominant

D Sex-linked recessive

Q How many types of gametes are produced by an organism with genotype of AaBB ?

- 1
- 2
- 3
- 4

Q Transposons are capable of moving from one site in DNA sequence to other mostly

- On same chromosome
- On homologous chromosomes
- **Randomly**
- On non-homologous chromosomes

Explanation

Jumping genes have no fix locus

Q Which of the following is true about alleles?

- They occupy different loci on same chromosome
- They occupy same loci on different homologue
- They occupy different loci on same homologue
- They occupy same loci on respective homologue

Explanation

Alleles are partners of a gene pair which are present on homologous chromosomes. An organism can be homozygous or heterozygous with respect to alleles.

Q. Mendelism is related with

Meiosis during sexual reproduction

Mutation in living organisms

Heredity in living organisms

Meiosis during asexual reproduction

Explanation

Mendel has proved pattern of transfer of traits from one generation to next generation.

Q The haploid chromosome number in pea is

A 8

B 7

C 10

D 14

Explanation

Number of chromosomes in somatic cell of pea is 14.

Q The organism chosen by G. Mendel to explain the laws of inheritance was

C *Homo sapiens*

D ***Pisum sativum***

E *Antirrhinum majus*

B *Drosophila melanogester*

Explanation

G. Mendel chosen *P. sativum* to perform series of breeding experiments because it was easy to cultivate and grow even in garden. Its flowers are hermaphrodite. It was normally self pollinating but could also be cross-fertilized. Mendel could raise many generations within short time because of short generation gap.

Q Mendel's law of segregation was based on the separation of alleles in the garden pea during

- Pollination
- Seed formation
- Gamete formation
- Embryonic development

Explanation

Mendel's law of Segregation states that allele pairs

Incorrect

Q In order to explain the mode of inheritance of characters through successive generations, Mendel proposed that the two alternative factors for each character become separated during the formation of gametes and each factors has an equal chance of being transferred to offsprings This phenomenon is known as

- Law of independent assortment
- Law of incomplete dominance
- Law of segregation
- Law of co-dominance

Explanation

Mendel's law of Segregation states that 'allele pairs separate or segregate during gamete formation and randomly unite at fertilization

A. [illegible]

B. [illegible]

Q What the percentage of round green seeds in F2 progeny of dihybrid is cross were heterozygous for green seed color?

A. 0%

B. 25%

C. 50%

D. 100%

Explanation

Green seed color is a recessive trait and is expressed only in homozygous condition.

Q Albinism is a trait

A Autosomal dominant

B Autosomal recessive

C Sex-linked dominant

D Sex-linked recessive

Explanation

Albinism is condition which appears in homozygous organisms only

Q How many types of gametes are produced by an organism with genotype of AaBB ?

1

2

3

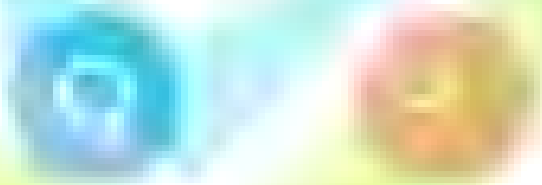
4

Explanation

This can be done according to Mendel's law of independent assortment

QUIZZES

Practice Test-2 (Variations and Genetics/Inheritance)



Q F_1 hybrid is intermediate between the two parents. The phenomenon is

A Over-dominance

B Complete dominance

C Co-dominance

D Incomplete dominance

06 : 58

Q ______ is a physiological effect of an allele over its partner allele on same gene locus

- Epistasis
- Dominance
- Bombay phenotype
- Gene linkage

Q A gene showing co-dominance has

A Alleles tightly linked on the same chromosome

B Alleles those are recessive to each other

C Both alleles independently expressed in the heterozygote

D One allele dominant on the other

Q If a trait is controlled by two or more than two genes then such genes are called as

- Multiple alleles
- Pleiotropic genes
- Polygenes
- Continuously varying traits

Q In multiple allele system one gamete possesses

A Two alleles

B One allele

C Three alleles

D Many alleles

Q Multiple alleles are the alleles that are always

- More than 1
- More than 2
- More than 3
- More than 4

Q Inheritance of ABO blood group system is an example of

A Multiple alleism

B Epistasis

C Partial dominance

D Dominance

Q If a child has O type of blood group and the father has B type then the genotype of the father will be

- A
- B
- A_IB
- B_IB

Q. These are not found in blood of a normal person having A positive blood group

- A) antigens
- B) Anti-B antibodies
- C) Rh antigens
- D) Anti-Rh antibodies

Q Which of the following genes is not involved in Rh blood group system?

- C
- E
- D
- H

Q F_1 hybrid is intermediate between the two parents. The phenomenon is

- Over-dominance
- Complete dominance
- Co-dominance
- Incomplete dominance

Explanation

When the phenotype of a heterozygote is blend between phenotypes of two homozygotes, the phenomenon is incomplete dominance

Q ... s a physiological effect of an allele over its partner allele on same gene locus

A Epistasis

B Dominance

C Bombay phenotype

D Gene linkage

Explanation

When an effect caused by a gene or gene pair at one locus interferes with or hides the effect caused by another gene or gene pair at another locus such a phenomenon of gene interaction is called epistasis. i.e Bombay phenotype

Q A gene showing co-dominance has

A Alleles tightly linked on the same chromosome

B Alleles those are recessive to each other

C Both alleles independently expressed in the heterozygote

D One allele dominant on the other

Explanation

If both alleles independently expressed in a heterozygote, then the phenomenon will be co-dominance

Pleiotropic genes

Q If a trait is controlled by two or more than two genes then such genes are called as

Multiple alleles

Pleiotropic genes

Polygenes

Continuously varying traits

Explanation

Single genes having more than 2 alleles are called as multiple alleles whereas when a single gene control more than one trait is called pleiotropy

A [illegible]

B [illegible]

Q In multiple allele system one gamete possesses

C Two alleles

D One allele

E Three alleles

F Many alleles

Explanation

Gametes are the haploid cells and contain one allele of a gene

Q Multiple alleles are the alleles that are always

More than 1

More than 2

More than 3

More than 4

Explanation

Multiple alleles are the alleles that are always more than two in number in population and occupy same locus

Q Inheritance of ABO blood group system is an example of

A Multiple allelism

B Epistasis

C Partial dominance

D Dominance

Explanation

ABO blood group system is encoded by a single polymorphic gene on chromosome 9. It has three multiple alleles I^A, I^B and i

Q If a child has O type of blood group and the father has B type then the genotype of the father will be

B

A_iB

I^Bi^B

Explanation

If a child has O type of blood group the genotype of his her father will never be I^Ai^B and I^Bi^B

Q These are not found in blood of a normal person having A positive blood group

A) A antigens

B) Anti-B antibodies

C) Rh antigens

D) Anti-Rh antibodies

Explanation

A person having A positive blood group have antigen A and Rh antigen on the surface of RBCs, and anti-B antibodies in blood plasma

Q Which of the following gene is not involved in Rh blood group system?

C

E

D

H

Explanation

H gene encodes H- substance which is necessary for the production of antigen A or antigen B on the surface of RBC's.

QUIZZES

Practice Test-3 (Variations and Genetics/Inheritance)

Q Bombay phenotype is an example of

A Dominance

B Pleiotropy

C Epistasis

D Polygenic inheritance

Q In Bombay phenotype ABO locus is on chromosome 9 while locus for H gene is on chromosome

- 9
- 11
- 19
- X

Q How many different types of genetically different gametes will be produced by a heterozygous plant having the genotype AABbCc?

- 2
- 4
- 6
- 9

Q Which of the following is a physical relation between genes?

A Dominance

B Epistasis

C Gene linkage

D Pleiotropy

Q Linked genes can be separated through

A Segregation of alleles

B Independent assortment

C Crossing over

D Mutation

Q There are 80% parental and 20% recombinant in a cross its recombinant frequency is

- A 10%
- B 20%
- C 40%
- D 80%

Q Nullo gamete is that having

A No chromosome

B No autosomes

C No sex chromosomes

D Non allelic sex genes

Q In humans, gender of child in progeny is determined by

A Homogametic father

B Homogametic mother

C Heterogametic father

D Heterogametic mother

Q Which one is not true about normal human sperm

C Two types

D Haploid

E Have one sex chromosome

B Non-motile

Q Sex chromosomes in human female are

A Pseudo autosomes

B Isomorphic

C Heteromorphic

D Homozygous

Q Bombay phenotype is an example of

D Dominance

P Pleiotropy

E Epistasis

Polygenic inheritance

Explanation

Bombay phenotypic person RBC lack A and B antigens although they do not lack I^A and I^B genes. They are phenotypically like O, but are not genotypically O

Q In Bombay phenotype, ABO locus is on chromosome 9 while locus for H gene is on chromosome

- 9
- 11
- 19
- X

Explanation

The ABO locus is on chromosome 9 while the locus for H gene is on chromosome 19

Q How many different types of genet ca y d fferent gametes will be produced by a heterozygous plant having the genotype AABbCc?

A 2

B 4

C 6

D 9

Explanation

Gametes produced wi be ABC, ABc, AbC, and Abc

A [illegible]

B [illegible]

Q Which of the following is a physical relation between genes?

C Dominance

D Epistasis

E Gene linkage

F Pleiotropy

Explanation

Genes are linked linearly on the same DNA molecule within a chromosome

A [illegible]

B [illegible]

Q [illegible]nked genes can be separated through

C Segregat on of a eles

D ndependent assortment

E Crossing over

F Mutation

Explanation

Linked genes can be separated by genetic recombination n meios s

Q There are 80% parental and 20% recombinant in a cross its recombinant frequency is

A 10%

B 20%

C 40%

D 80%

Explanation

It can be calculated by the using the following formula

- Recombination frequency = Recombinant types/Sum of all combination × 100

Q Nullo gamete is that having

A No chromosome

B No autosomes

C No sex chromosomes

D Non allelic sex genes

Explanation

Nullo gamete has on y autosomes

Q In humans, gender of child in progeny is determined by

A Homogametic father

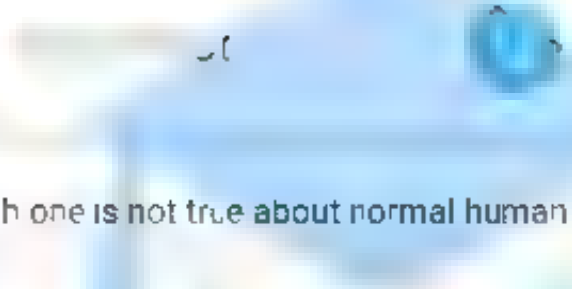
B Homogametic mother

C Heterogametic father

D Heterogametic mother

Explanation

In humans, males produce two types of gametes and sex of offspring is dependent on males



Q Which one is not true about normal human sperm

Two types

Haploid

Have one sex chromosome

Non-motile

Explanation

Human sperms require motility provided by attached tail to move towards released egg in female tract

Q Sex chromosomes in human female are

Pseudo autosomes

Isomorphic

Heteromorphic

Homozygous

Explanation

Human female genotype is 44+XX while male is 44 + XY

QUIZZES

PracticeTest-4 (Variations and Genetics/Inheritance)

Q XXY set of chromosomes in Drosophila produces

A Fertile Female

B Klinefelter's Syndrome

C Sterile female

D Sterile Male

Q It is an autosomal recessive trait

- A Haemophilia B
- B Haemophilia C
- C Protanopia
- D Deuteranopia

Q Which of these traits zigzags from maternal grand father through carrier daughter to a grand-son?

A Autosoma

B X- linked

C Y linked

D Both 'X' and 'Y' linked

Question 7 of 10

Q Most prevalent abnormality of blood c otting factor is of

A Factor V I

B Factor V II

C Factor IX

D Factor X

Q Colour blindness is caused by a single

A Recessive gene in man

B Recessive gene in woman

C Dominant gene in man

D Dominant gene in woman

Q Women with normal colour vision whose father was red-green colour blind married a red-green colour blind man. What is the probability of her first born child being red-green colour blind?

A 1.0

B 0.75

C 0.66

D 0.50

Q Trait which passes directly from father to son

A Colour blindness

B Ichthyosis

C Maleness

D Hemophilia

Q It passes direct y from father to son

A X-l nked trait

B Y inked trait

C X l nked recessive trait

D X-linked dominant tra t

Q Which one is mismatched?

A Haemophilia C – autosomal

B Blue eyes – autosome 7

C tfm – X chromosome

D Pattern baldness – X linked

Q Baldness in male is a _____ disorder

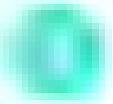
A Sex linked recessive

B Sex linked dominant

C Autosomal dominant

D Autosomal recessive

Q XXY set of chromosomes in Drosophila produces



Fertile Female

Klinefelter's Syndrome

Sterile female

Sterile Male

Explanation

XXY individual produced through non disjunctional gametes in humans is a sterile male called Klinefelter's syndrome but the same XXY set of chromosomes in Drosophila produces a fertile female

Q It is an autosomal recessive trait

Haemophilia B

Haemophilia C

Protanopia

Deuteranopia

Explanation

Colour blindness (Red, Green), Haemophilia A and B are sex linked traits while haemophilia C is autosomal recessive

Q Which of these traits zigzags from materna grand father through carrier daughter to a grand son?

A Autosoma

B X- inked

C Y inked

D Both 'X' and 'Y' inked

Explanation

X nked recessive tra is moves from materna grand father through carrier daughter to a grand-son in a zigzag manner

Q Most prevalent abnormality of blood clotting factors of

A Factor VI

B Factor VII

C Factor IX

D Factor X

Explanation

Hemophilia A - 80%

Hemophilia B - 20%

Hemophilia C - less than 1%

Q Colour blindness is caused by a single

A Recessive gene in man

B Recessive gene in woman

C Dominant gene in man

D Dominant gene in woman

Explanation

Colour blindness is an X-linked recessive trait which is determined by an X-linked recessive gene

Q Women with normal colour vision whose father was red-green colour blind married a red-green colour blind man What is the probability of her first born child being red-green colour blind?

A 1.0

B 0.75

C 0.66

D 0.50

Explanation

As mother's carrier father's diseased and disease's X-linked recessive trait so the chance of child being colour blind is 50 %

Correct | Unattempted

Incorrect | 7/10

Q : Trait which passes directly from father to son:

A Colour blindness

B Ichthyosis

C Maleness

D Hemophilia

Explanation

Son Receive Y chromosome from his father only.

Correct | Unattempted

Incorrect | 8/10

Q : It passes directly from father to son:

A X-linked trait

B Y-linked trait

C X-linked recessive trait

D X-linked dominant trait

Explanation

Maleness is trait which passes directly from father to son.

Correct Unattempted

Incorrect 9/10

Q : Which one is mismatched?

A Haemophilia C – autosomal

B Blue opsin - autosome 7

C tfm – X chromosome

D Pattern baldness – X linked

Explanation

Pattern baldness is an example of sex influenced traits.

Correct | Unattempted

Incorrect | 10/10

Q : Baldness in male is a _____ disorder:

A Sex linked recessive

B Sex linked dominant

C Autosomal dominant

D Autosomal recessive

Explanation

Baldness is a sex influenced trait. A heterozygous female will not get bald but a heterozygous male will get bald.